2010 NOAA Air Quality Forecast Guidance Feedback

(Atlanta, GA)

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Overall Ozone and $PM_{2.5}$ Model Performance

Statistical parameters for 8-hr ozone and 24-hr $PM_{2.5}$ peaks, forecasted by the NOAA Air Quality Experimental and Developmental models (respectively). Data was collected for the Metro Atlanta area during the period of June 29th – August 20th, 2010

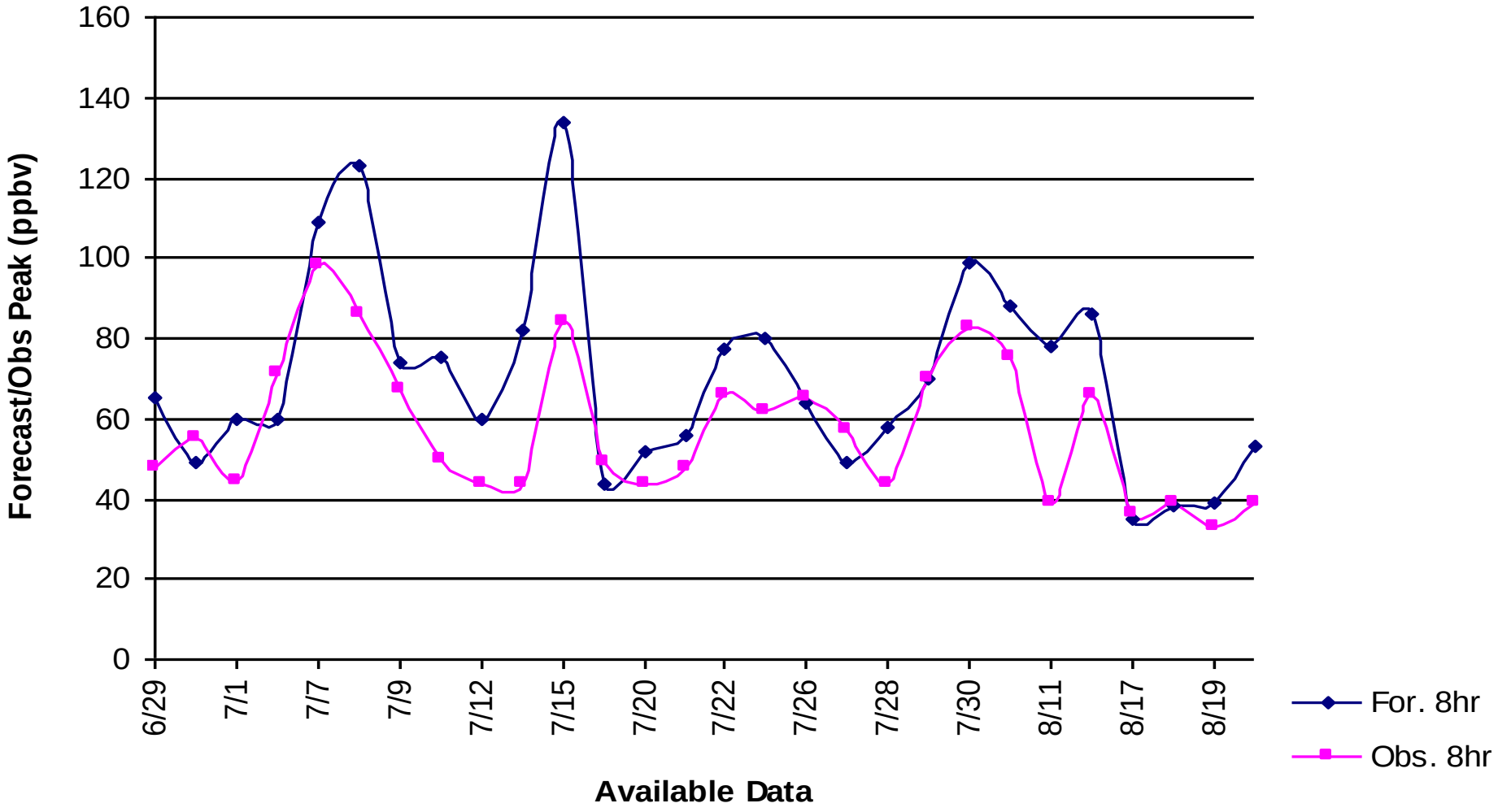
Forecast Type	Mean Forecasted Peak ($\mu g/m^3$)	Mean Observed Peak ($\mu g/m^3$)	Absolute Error	Data Points	Bias	Correlation Coefficient
8-hr. averaged ozone (Exp)	69.9	57.4	14.9	28	12.5	0.8
24-hr averaged $PM_{2.5}$ peak (Dev)	16.5	16	4.1	30	0.6	0.6

The experimental ozone model tended to overpredict values, while the developmental $PM_{2.5}$ model only showed a slight tendency to overprediction.

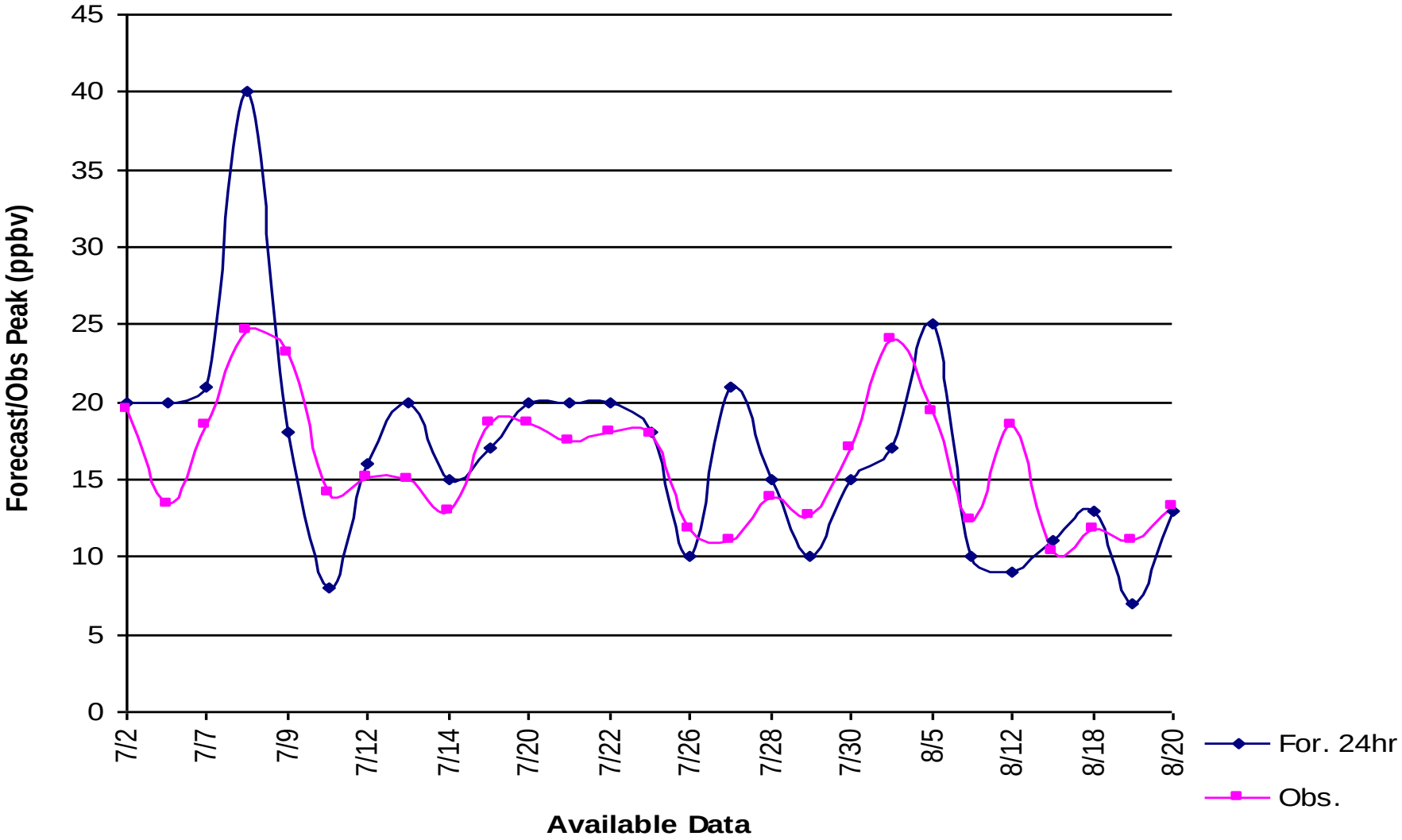
Number of categorical 8-hr averaged ozone NOAA air quality model forecasts v. observations, according to EPA Air Quality Index (AQI), for Metropolitan Atlanta area for the period of June 29 – August 20, 2010

AQI Category	Operational Model Forecasted AQI Category	Observed AQI Category
Good	10	16
Moderate	8	8
Unhealthy for Sensitive Groups	6	3
Unhealthy	2	1
Very Unhealthy	2	0

FORECAST and OBS, 8-hr Average Ozone Peak Forecast vs Obs.
Metro Atlanta, June 29th - August 20th, 2010
(*Experimental Model*)



FORECAST and OBS, 24-hr Average Fine Particulate Matter
Forecast vs Obs. Metro Atlanta, June 29th - August 20th, 2010
(*Developmental Model*)



Conclusions and Recommendations

- The experimental ozone model correctly identified trends, but had a tendency to overpredict values.
- The developmental $PM_{2.5}$ model generally identified most trends, yet had a slight tendency to overpredict, especially at the beginning of July.
- Careful evaluation of meteorological parameters ingested during each model run may aid in reducing the number of overpredictions.
- The ozone model was particularly useful operationally in illustrating potentially large changes in concentration.
- The ozone model was not as useful in predicting the ultimate maximum 8-hour value.